

THE
LATEST
WORD
IN
SHEET
METAL...

HYDRO-T-METAL

... An amazingly versatile, new sheet metal that provides specific fabricating, cost and weight-saving advantages. *T-Metal* retains all of the basic advantages inherent in zinc:

- corrosion and rust resistance
 - malleability
 - solder-ability
 - light weight
 - economy
- and provides in addition:
- the structural strength
 - stability and
 - scope of other non-ferrous metals, including
 - the ability to be extruded
 - fusion welded
 - perforated.

Perfected after 10 years of exhaustive research and intensive testing, *T-Metal* is the latest achievement in zinc-based alloys.

...FROM A NAME THAT'S
BEEN TRUSTED FOR 90 YEARS

**ILLINOIS ZINC
COMPANY**

DIVISION OF



HYDROMETALS, INC.

HYDRO-T-METAL

Hydro-T-Metal is a totally new 'master-mix' alloy of titanium, copper, elements "X" and zinc perfected and produced by HYDROMETALS, INC. It is more versatile than any zinc-based alloy ever produced . . . the most useful sheet metal available today.

HOW IT DIFFERS FROM OTHER ZINC-BASED ALLOYS...

T-Metal is tough! It boasts a creep-resistance 350 times that of simply copper-hardened zinc. T-Metal resists stretching or sagging under tension or under temperature change, thereby counteracting the tendency that has limited zinc-based alloys as structural materials.

Dead weight loads of 12,000 lbs./sq. in. cause other zinc alloys to stretch as much as 6% in one hour, and to rupture in a few hours. T-Metal shows practically no stretch when exposed to the same pressure, and does not fail when left under that load for weeks.

Ordinary zinc alloys tend to show grain growth and resulting structural weakness when subjected to temperatures in the 350 to 450°F. range for several hours. T-Metal actually improves in stability when treated at temperatures of 480°F. . . its creep-resistance increases after several hours at that temperature.

WHY T-METAL IS SUPERIOR... There are two reasons: 1. The carefully regulated way in which exact quantities of titanium are added to the secret alloy; and 2. HYDROMETALS' own special rolling and heat-treatment processes to stabilize the new alloy.

FABRICATING ADVANTAGES

- ✓ 1. T-Metal solders easily . . . (Aluminum does not.)
- ✓ 2. T-Metal can be fusion welded . . . (Other zinc alloys cannot.)
- 3. T-Metal can be deep drawn without stage annealing . . . (Unlike aluminum, copper and brass, it does not work harden.)
- 4. T-Metal is excellent for severe forming . . . (Cold rolled copper and aluminum are not.)
- 5. T-Metal machines well.
- ✓ 6. T-Metal can be readily spun, extruded, stamped, coined, embossed and perforated.
- 7. T-Metal is particularly easy on tools and dies . . . (It has saved as much as 25% on die and tool life.)
- ✓ 8. T-Metal can be subjected to high temperature processing (up to 500 degrees F.) It takes nickel and chrome plating and high polishing beautifully (Other zinc-based alloys do not.)
- 9. T-Metal is self-lubricating for purposes of roll forming.
- ✓ 10. T-Metal will not rust or stain surrounding areas . . . (Copper and steel will.)
- ✓ 11. T-Metal has extraordinary corrosion resistance in coastal (saline) and industrial atmospheres . . . (It is superior to aluminum; it will not pit.)
- ✓ 12. T-Metal can be embedded in concrete and mortar without protective coating (aluminum cannot) and, of course, in earth (which steel cannot.)
- ✓ 13. T-Metal is easily adaptable to color coating.
- ✓ 14. T-Metal is an ideal material for electrical uses because of its good conductivity.
- ✓ 15. T-Metal excels for shielding because of its non-magnetic quality . . . (It is superior to aluminum and, of course, to copper and steel.)
- ✓ 16. T-Metal is non sparking.
- ✓ 17. T-Metal is lightweight (.258 pounds per cubic inch) —20% lighter than copper, 16% lighter than brass, and 9% lighter than stainless steel.
- ✓ 18. One pound of T-Metal will therefore cover correspondingly more area than a pound of steel or of copper or of brass.

ENGINEERING PROPERTIES

PRODUCTION METHOD

	(Hot) Rolled Strip	(Cold) Rolled Sheet
Composition	Cu .75-1.25	Cu .30-.70
Range %	Ti .10-.40	Ti .10-.40
	Elements "x"	Elements "x"
	Balance	Balance
	Hi Grade Zn	Hi Grade Zn

PHYSICAL PROPERTIES

Density, gm/cc	7.14	7.14
Density, lb./cu. in.	0.258	0.258
Melting point, °F.	792	792
Specific heat, cal/gm at 68-212°F.	0.096	0.096
Coeff. of expansion per °F.	12.8x10 ⁻⁶	12.8x10 ⁻⁶
Electr. resistivity, microhm-cm at 68°F.	6.31	6.31

MECHANICAL PROPERTIES

Tensile Strength, psi: ¹	30,000, 38,000	27,000, 34,000
Elongation in 2", % ¹	25, 13	20, 11
Hardness, Rock (15T):	67	67
Dynamic ductility, mils	295	280
Bends 1.2	2T, 2T	2T, 2T
Creep rate, expressed as number of days per 1% elongation at 70°F. under stress of 8000 psi	714	714

¹Where two figures separated by a comma are given, the first represents measurement parallel to grain, the second perpendicular to grain.

TYPICAL
T-METAL
USES





Lower building costs are the prospect wherever *T-Metal* is used instead of other non-ferrous metals . . . for downspouts, cupola or bay window roofing, valleys, flashings even storm/screen combination frames.

T-Metal sheet is the key to substantial fabricating and cost-saving advantages in curtain-wall construction . . . where appearance and longevity really count.



The spires of Notre Dame Cathedral, a Parisian landmark for centuries, are living testimonials to the durability and practicality of zinc for roofing materials—a job for which *T-Metal* has even more excellent qualifications.

T-Metal's uses are virtually numberless. Its applications extend throughout industry. One 'Big Three' American auto maker, for instance, estimates that there are thousands of possible *T-Metal* uses in a single car now being produced.

Here are a very few ways in which *T-Metal* serves you:

CONSTRUCTION

- Corner Beading
- Corrugated Sheets
- Counterflashing
- Curtain Walls
- Do-it-yourself Sheet Metal
- Door and Window Frames
- Duct Work
- Expanded Metal Lath
- Gravel Stop and Fascias
- Gutter and Downspout
- Roofing
- Shingles
- Siding
- Stone Anchors
- Termite Shields
- Terrazzo Strip
- Tubing
- Vapor Barriers
- Venting

ESTIMATED SAVINGS

Using current base-price-per-100-pounds as a norm (100%), here are typical cost savings (in percentages) possible where *T-Metal* is used — instead of brass, stainless steel or copper — for jobs that it performs at least equally as well.

	Sheet	Strip	Plate
70-30 Yellow Brass	100%	100%	100%
<i>T-Metal</i>	74%	74%	67.4%
Saving	26%	26%	32.6%
18-8 Stainless	100%	100%	100%
<i>T-Metal</i>	43.5%	54.3%	48.5%
Saving	56.5%	45.7%	41.5%
Hot Rolled Copper	100%	100%	100%
<i>T-Metal</i>	65%	65%	59%
Saving	35%	35%	31%

RANGE OF SIZES AVAILABLE

AS STRIP:

In any thickness from .004" minimum to .25" maximum (.020", .025" and .027" are the standard gauges)

In any width from .25" minimum to 54" maximum (widths up to 80" are available on special order)

In coil sizes up to 175 pounds per inch of width

AS SHEET:

In any thickness from .020" minimum to .125" maximum (.020", .025" and .027" are the standard gauges) (sheet and plate stock heavier than .125" is available in smaller sizes)

Cut to the following standard sizes:

20" x 96"	30" x 120"
24" x 96"	36" x 96"
30" x 96"	36" x 120"

Cut also to the following sizes:

48" x 96"	54" x 96"
48" x 120"	54" x 120"

AS CORRUGATED SHEET:

In thickness of .020" and .032"

In widths of 26" and 27½", 39" and 40½"

In lengths from 6' to 12'

(Both 26" and 27½" widths have a 24" covering width. Both 39" and 40½" widths have a 37" covering width).

WRITE FOR DETAILED INFORMATION,
PRICES, AND THE NAME OF THE HYDRO-T-METAL
DISTRIBUTOR NEAREST YOU.

T-METAL PRODUCTION FACILITIES

T-Metal is being produced at HYDROMETALS' sheet mill, Peru, Illinois, and strip mill, Chicago, Illinois. These represent the most modern rolling facilities in the zinc industry. The latest equipment for stretcher-levelling, shearing, slitting and cutting to length is employed.

It is also being produced at the Madison, Illinois, mills of the Dow Metal Products Co. Division of the Chemical Company. Dow's plant is one of the largest, most modern non-ferrous metal-working installations in the world, with its seven rolling mills — two of them 84 inches wide. The efficiency and capacity of Dow's Madison plant far surpass those of any other in the zinc industry.

Ingots of *Hydro-T-Metal* weighing almost 8,000 pounds — believed to be the heaviest slabs of non-ferrous metal ever converted to sheet — are being rolled and coiled at Madison. These record ingots are more than five times larger than that of any zinc-based alloy ever fabricated.

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